

What is claimed is:

1. An on-vehicle dedicated short range communication equipment comprising:

5 searching means for performing search for radio frequencies used by a roadside dedicated short range communication equipment with which the on-vehicle dedicated short range communication equipment is going to have a dedicated short range communication; and

10 establishing means for establishing a link for the dedicated short range communication with said roadside dedicated short range communication equipment at the searched frequencies,

15 wherein said searching means performs the search by cyclically switching radio frequencies from one to another while keeping a ratio that radio frequencies for a first type of communication is searched for larger than a ratio that a radio frequencies for a second type of communication is searched for.

2. The on-vehicle dedicated short range communication equipment as set forth in claim 1,

20 wherein said first type of communication is a communication requiring high-speed link establishment, and

wherein said second type of communication is a communication not requiring high-speed link establishment.

25 3. The on-vehicle dedicated short range communication equipment as set forth in claim 1,

wherein said searching means keeps the ratio that the radio

5 frequencies for the communication requiring high-speed link establishment is searched for larger than the ratio that the radio frequencies for the communication not requiring high-speed link establishment is searched for by increasing the number of times that the radio frequencies for the communication requiring high-speed link establishment is searched for.

4. The on-vehicle dedicated short range communication equipment as set forth in claim 1,

10 wherein said searching means switches demodulation method when switching radio frequencies.

5. The on-vehicle dedicated short range communication equipment as set forth in claim 1,

15 wherein radio frequencies used by roadside dedicated short range communication equipments are divided into groups,

wherein the group is designated before said searching means starts the search, and

20 wherein said searching means performs the search by cyclically switching radio frequencies in the designated group.

6. The on-vehicle dedicated short range communication equipment as set forth in claim 5,

wherein a part of a group overlaps a part of another group.

25 7. A dedicated short range communication system, comprising:  
the on-vehicle dedicated short range communication equipment as set forth in any one of claims 1 to 6; and

roadside dedicated short range communication equipments.

8. An on-vehicle dedicated short range communication method comprising:

5 a searching step for performing search for radio frequencies used by a roadside dedicated short range communication equipment with which the on-vehicle dedicated short range communication equipment is going to have a dedicated short range communication; and

10 a establishing step for establishing a link for the dedicated short range communication with said roadside dedicated short range communication equipment at the searched frequencies,

15 wherein said searching step performs the search by cyclically switching radio frequencies from one to another while keeping a ratio that radio frequencies for a first type of communication is searched for larger than a ratio that a radio frequencies for a second type of communication is searched for.

9. The on-vehicle dedicated short range communication method as set forth in claim 8,

20 wherein said first type of communication is a communication requiring high-speed link establishment, and

wherein said second type of communication is a communication not requiring high-speed link establishment.

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10. The on-vehicle dedicated short range communication method as set forth in claim 8,

wherein said searching step keeps the ratio that the radio frequencies for the communication requiring high-speed link establishment is searched for larger than the ratio that the radio frequencies for the communication not requiring high-speed link establishment is searched for  
5 by increasing the number of times that the radio frequencies for the communication requiring high-speed link establishment is searched for.

11. The on-vehicle dedicated short range communication method as set forth in claim 8,

10 wherein said searching step switches demodulation method when switching radio frequencies.

12. The on-vehicle dedicated short range communication method as set forth in claim 8,

15 wherein radio frequencies used by roadside dedicated short range communication equipments are divided into groups,

wherein the group is designated before said searching means starts the search, and

20 wherein said searching step performs the search by cyclically switching radio frequencies in the designated group.

13. The on-vehicle dedicated short range communication method as set forth in claim 12,

wherein a part of a group overlaps a part of another group.